Unified San Diego County Emergency Services Organization

Area Hazards Materials Plan
Oil Spill Contingency Element

SAN DIEGO HARBOR SAFETY PLAN

Mandated by

California Oil Spill Prevention and

Response Act of 1990

DISCLAIMER: The San Diego Harbor Safety Plan is not to be used for navigational purposes. The San Diego Harbor Safety Committee assumes no responsibility or any liability for any injury or damage resulting from the use or effect of any information in this publication.

HARBOR SAFETY PLAN HISTORY

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Final adopted	July 28, 1993
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Second Annual Review	June 21, 1995
Third Annual Review	December 11, 1996
Fourth Annual Review	November 12, 1997
Fifth Annual Review	September 23, 1998
Sixth Annual Review	May 26, 1999

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Executive Summary

This document represents the most recent annual review and update of the San Diego Harbor Safety Plan. The San Diego Harbor Safety Committee (HSC) has expanded the 12 areas mandated for study under State law to 14 sections, to include Implementation and Anchorages and Anchorage Management. The summary below contains a brief description of the content of and recommendations from each section of the plan. Complete text and background for each recommendation is contained in the body of the plan.

I. GEOGRAPHICAL BOUNDARIES A detailed description of the geographical boundaries of the harbor.

II. HARBOR CONDITIONS A description of existing and expected conditions of weather, tidal ranges, tidal currents, and other factors.

III. AIDS TO NAVIGATION An evaluation of the existing aids to navigation systems available in the harbor.

Recommendation 1: That additional dredging of the navigation channel be accomplished to provide an 800 foot wide channel from sea to Buoy R”20".

Recommendation 2: The HSC requests that the intensity of the light be increased on the navigational range lights.

Recommendation 3: The HSC recommends a change to the signs to provide each with a distinctive appearance would assist navigation and is recommended.

IV. ANCHORAGES AND ANCHORAGE MANAGEMENT A description of the limitations of current anchorages and any plans to address those limitations.

Recommendation 4: Continue clearing hazards in the area west of the channel near the 24th Street Marine Terminal turning basin to allow for tug maneuvering. The HSC supports the ongoing effort of the San Diego Unified Port District to clear the area of hazards.

V. COMMUNICATIONS A review and evaluation of the adequacy of current ship-to-ship and ship-to-shore communication systems used in the harbor area.

Recommendation 5: Educate marine VHF radio users about the authorized use for the various radio channels (highlighting channels recreational boaters are not allowed to use), and proper radio power settings to limit transmission carry-over (interference).

Recommendation 6: Encourage submission of violation reports by the Harbor Police, USCG, and Bay Pilots identifying violators to the FCC for enforcement.

VI. VESSEL TRAFFIC PATTERNS A description of the types of vessels which call on the ports or facilities within the harbor area, and an assessment of current safety issues.

Recommendation 8: Provide an educational program to successfully improve navigation safety in the Bay that has the following objectives: 1) increase awareness of navigation rules, safe operation, and limitations of large vessels; 2) improve qualification standards of recreational boaters; and 3) targeted enforcement.

Recommendation 9: Post signs in marinas, boat launching ramps, and frequently used boating areas that warn of the danger of boating near large vessels and remind recreational boaters of the importance of Rule 9. These signs will contain two or three graphics depicting the result of interfering with a large ship and simple text reminding boaters of their obligation to respect Rule 9.

Recommendation 10: Request that OSPR urge the California Department of

Motor Vehicles (DMV) to continue to include Safe Boating flyers with each boat registration, reminding vessel owners of rules of the road and safe boating practices. The Full Committee adopted proposed legislation which is attached as Appendix I.

Recommendation 11: Publicize the availability and list of insurance agencies offering discounts on insurance rates to those boaters who graduate from USCG Auxiliary or Power Squadron Safe Boating classes. Model "good boater" incentives on existing auto "good driver" rates.

Recommendation 12: Request the *San Diego Log* and the *Waterfront News* feature weekly "Do You Know...." pointers column on proper boating rules and environmental tips regarding safe boating in San Diego Bay. These would be selected from and provided by USCG auxiliary materials, *Port District Safe Boating Guide*, Environmental Health Coalition's *Baywatch- A Guide for Boaters*, and other existing sources.

Recommendation 13: Convene a meeting as part of "Safe Boating Week" with OSPR, Coast Guard, Pilots, yacht club racing committees, and recreational boaters to evaluate anticipated race courses for the season, potential impacts on large vessel traffic, and to discuss ways to avoid conflict in the channel.

Recommendation 14: Maintain and update a list of agency speakers and topics to be updated each year during the annual review of this plan. List to include agencies, phone numbers, and suggested topics upon which the group is prepared to speak. Make list available to public groups, marinas, yacht clubs, other boating groups to raise safety issues and educate about the potential problems in the Bay.

Recommendation 15: Request the DMV to require non-professional licenses, similar to automobile drivers licenses, for all boat operators. Funding could be provided through DMV registration fees.

Recommendation 16: Request that OSPR require rental agencies on the Bay to require all renters to read and initial (indicating understanding) of Rules of the Road, Rule 9, speed limits, Wake Rules, and boating under the influence regulations prior to execution of the rental agreement.

Recommendation 16-A: As a result of the 1997 review of the Harbor Safety Plan the Committee made the following recommendation for a change to the Draft Tug Escort Regulations: Modify section 852.4 (i) (2) to read *A tanker shall not be required to engage in escort services when it is carrying less than 5% of the vessel's deadweight tonnage in oil or petroleum products, and is in ballast and inert or gas-free*.

VII. TUG ASSIST/ESCORT A description of the usage of tug escorts in the harbor, including a procedure for a case-by-case determination of tug escort usage or need based on specified criteria.

VIII. VESSEL TRAFFIC SERVICE (VTS) Recommendations regarding the establishment of VTS systems for the harbor area.

Recommendation 17: The HSC strongly recommends that a system to facili-

tate an exchange of information regarding vessel movement be established in San Diego Harbor. This recommendation is being fufilled.

IX. BRIDGE MANAGEMENT REQUIREMENTS An assessment of the physical limitations affecting vertical and horizontal clearance.

X. COMPETITIVE ASPECTS An identification and discussion of the potential economic impacts of implementing the provisions of the Plan.

XI. PROJECT FUNDING

Recommendation 18: There are several possible funding sources for VTS and other Harbor Safety Programs. These include: San Diego Unified Port District, U.S. Navy, U.S. Coast Guard, shipping owner/operators, OSPR, and a user surcharge.

Recommendation 19: The educational programs could be funded through a variety of funding sources.

XII. ENFORCEMENT An analysis of and suggested mechanisms to ensure that the provisions of the plan are fully, uniformly and regularly enforced.

Recommendation 20: Continue to support the USCG reporting system on the Bay where pilots or others can report sail or registration numbers of violators.

Recommendation 21: Explore options for requiring safe boating classes and/or Bay cleanup for those that are caught violating the law or otherwise endangering safety on the Bay.

Recommendation 22: Coast Guard should insure that all races are properly permitted and monitored.

Recommendation 23: Request that the Harbor Police and USCG be on patrol during peak periods of traffic.

XIII. IMPLEMENTATION Provides an overview of implementation avenues for the recommendations in the Harbor Safety Plan.

XIV. MISCELLANEOUS Addresses additional issues that could impact safe navigation in the harbor, including pilotage, vessel ballast procedures, vessel mooring requirements, navigation in reduced or restricted visibility, and maintenance dredging.

Recommendation 24: Continue clearing hazardous flotsam west of the channel off the 24th Street Marine Terminal turning basin to allow for tug maneuvering.

OTHER ACTIONS

I. STATE PILOTAGE

Recommendation 26: The San Diego Harbor Safety Committee recommends that OSPR consider covering San Diego under State Pilotage Regulations. Until such oversight is in effect the San Diego Harbor Safety Committee makes recommendations 27 through 33.

II. RATES

Recommendation 27: Pilotage rates should be sufficient to cover all costs associated with the operating expenses incurred in operating an efficient, safe and responsive piloting organization to secure the safety of the Port of San Diego.

III. COMPENSATION

Recommendation 28:

1. The San Diego Board of Port Commissioners should consider raising tariff rates to raise pilot compensation levels adequate to ensure a safe operating system by avoiding attrition of authorized pilots, licensed state pilots, certificated deputy pilots, or qualified pilot applicants.
2. In considering compensation levels, the Board should give consideration to other relevant factors, including, the Florida Piloting Statutes April 4, 1994, Journal of the House of Representatives Section 310.151-Rates of pilotage: Pilotage Rate Review Board and the factors given in the Cal Jur 3d Ships and Shipping, Harbors and Navigation Code for San Francisco Bay, and the national average.

IV. ORGANIZATION, RULES AND REGULATIONS

Recommendation 29: The rules and regulations promulgated in the Port Tariff should reflect the premise that: (1) The Port of San Diego should recognize an organization as having exclusive authority, to the extent not provided otherwise by federal law, to pilot vessels from the high seas to and within San Diego Bay and returning to sea; (2) No ship's master or crew member should be permitted to pilot his own vessel in San Diego if subject to pilotage by tariff; (3) Safety is best served by implementing compulsory pilot service for all vessels of 300 hundred gross tons or more, barges carrying hazardous cargo and all oil barges whether empty or carrying cargo; and, (4) In order to provide professional judgment of the qualifications and suitability of a pilot candidate the Board should consider for designation and authorization only those federally licensed applicants endorsed by the recognized organization.

V. PILOT STATION

Recommendation 30: It is recommended that the pilot office be relocated to the vicinity of Ballast Point or as near to the southern end of Shelter Island as possible and that the pilot boat be berthed adjacent to the station. This location would provide a view down channel offering:

A) real time knowledge of sea and weather conditions;
B) quick response to inbound vessels; and,
C) sight inbound vessels on occasion and prevent problems with inbounders

The pilot office should be adequately equipped.

VI. PILOT TRAINING

Recommendation 31: 1) The recognized pilot organization should write a formal pilot training program to include continuing development of pilots already qualified. 2) The Port of San Diego should establish a funding mechanism such as a surcharge to provide funds for a formal training program.

VII. RECOMMENDED EVALUATION OF NAVAL PILOTAGE

Recommendation 32: It is recommended that a review and analysis be undertaken, to the extent possible, for the naval pilotage system as it relates to oil tanker and other vessel traffic through San Diego Bay and the area covered by the HSC.

Recommendation 33: The HSC supports the Coast Guard rule making process which would mandate federal pilotage in San Diego Harbor. Furthermore, the Harbor Safety Committee recommends that OSPR support this process to the extent possible.

INTRODUCTION

SAN DIEGO BAY

San Diego Bay encompasses 12,000 acres and is 14 miles long and, at half-tide, has an area of 18 square miles and a water volume of 300 million cubic yards. It lies entirely within the County of San Diego and is bounded by five cities: San Diego, National City, Chula Vista, Imperial Beach, and Coronado. Ecologically, San Diego Bay is considered one of the most important embayments of the California coast and has nationally and internationally significant natural resources. The Bay is a major stop on the Pacific Flyway and many species of birds, finfish, shellfish, turtles, bottom-dwelling invertebrates, and plants are dependent on the Bay. Over 50 endangered, threatened, or rare species are found in San Diego Bay. The Bay is also home to a large sportfishing and whale migration observation fleet. The Pt. Loma kelp bed, near the mouth of the Bay, is world famous as a diving, snorkeling, and surfing location.

San Diego Bay's extensive shelter from ocean waves make it one of the finest natural harbors in the world. Three separate marine terminals provide facilities for a variety of commercial cargo handling and cruise ship operations. Principal cargos include lumber, newsprint, fertilizer, fresh, frozen, and canned foodstuffs, automobiles, palm oil, minerals, and fuel oil. Passenger cruise ships frequent the harbor on a daily basis.

One sixth of the U.S. Naval Fleet is home ported in San Diego Bay making it

instrumental in our National Defense. The Navy has designated San Diego Bay as a West Coast megaport.

The San Diego area is a major tourist and convention destination.

SAN DIEGO HARBOR SAFETY COMMITTEE

In 1990, the State of California enacted the *Oil Spill Prevention and Response Act* (Act). The Act intended to improve the prevention, removal, abatement, response, containment, clean-up, and mitigation of oil spills in the marine waters of California. The Act (S.B. 2040) created harbor safety committees for the major harbors of the state of California to plan:

> "*for the vessels within each harbor...[by preparing]... a harbor safety plan, encompassing all vessel traffic within the harbor.*"

Regulations to implement the Act were codified in:

CALIFORNIA CODE OF REGULATIONS
TITLE 14, DIVISION 1
SUBDIVISION 4, OFFICE OF OIL SPILL PREVENTION AND RESPONSE
CHAPTER 2. OIL SPILL PREVENTION AND RESPONSE PLANNING
SUBCHAPTER 1. HARBOR SAFETY COMMITTEE PLANS - ESTABLISHMENT
SECTIONS 800 - 802

§802 of the above regulations delineates the plan content requirements and is quoted throughout the plan in italics with references to the location in CCR §802 following the language in parentheses.

Harbor safety committees were established for San Diego, San Francisco, San Pablo, and Suisun Bays, Los Angeles/Long Beach, Port Hueneme, and Humboldt Bay. The San Diego Harbor Safety Committee (HSC) was sworn in on May 13, 1992 and held its first meeting on that date.

The full committee held monthly meetings to assemble the original Harbor Safety Plan. The Chairman appointed a series of subcommittees to review the mandated components of the Plan and to make recommendations. In subsequent years, full committee meetings were held bimonthly. All meetings were noticed and open to the public.

SAN DIEGO HARBOR SAFETY COMMITTEE
MEMBERSHIP 1998

There are ten voting members and three non-voting representatives on the Committee.

PILOTS ORGANIZATION

Capt. Ed Silva, Jr.
San Diego Bay Pilots Assn.

Alternate- Capt. Eric Ireland
San Diego Bay Pilots Assn.

DRY CARGO VESSEL OPERATORS

Mr. Marc Schouwe
Alternate - Mr. Ilias Katsanias

COMMERCIAL FISHING PLEASURE BOATS

Capt. Debra Marks- HSC CHAIRPERSON
Alternate - Mr. Bill Lewis

ENVIRONMENTAL ORGANIZATION

Ms. Laura Hunter
Environmental Health Coalition

Alternate - Nicole Capretz
Environmental Health Coalition

TUG/BARGE OPERATOR

Mr. Wendell Coi
Foss Maritime

Alternate - Mr. Mark Cohen
Foss Maritime

TANKER OPERATOR

Capt. Corliss Nugent
Alternate - Mr. Ira Buck Beaver

CALIFORNIA COASTAL COMMISSION

Ms Caitlin Sweeney

LABOR ORGANIZATION

Mr. Mark Jennings
Foss Maritime

Alternate - Capt. Raleigh Miles
Foss Maritime

EXCURSION VESSELS

Capt. Richard Goben
Alternate- Bob Crawford

SAN DIEGO UNIFIED PORT DISTRICT

Mr. Stanley R. Westover
Alternate - Paul Libuda

CALIFORNIA FISH AND GAME LIAISON
(Non-member representative)
Ms. Hathor Woods
Alternate- Mr. William Dickerson

UNITED STATES NAVY
(Non-member representative)
CDR. Ed Caviness
COMNAVBASE San Diego
Alternate- Mr. John Owens

UNITED STATES COAST GUARD
(Non-Member representative)

CDR. Mike Farley
United States Coast Guard, MSO
Alternate - Joe Servidio
United States Coast Guard

ORGANIZATION OF THE SAN DIEGO HARBOR SAFETY COMMITTEE

Chair: Capt. Debra Marks

Subcommittees:	**Chairperson**
1993	
Tug Escort	Capt. Vic Anderson
Harbor Conditions	Ms. Laura Hunter
Communications/Navigation	Mr. Paul Libuda
Vessel Traffic	Capt. Edward Silva
Implementation	Mr. H.C. Jay Powell
1994	
Education	Ms. Laura Hunter
Pilotage	Capt. Eric Ireland
Limited Visibility	
1995	
Pilotage	Capt. Eric Ireland
Education	Capt. Debra Marks
1996	
Pilotage	Capt. Corliss Nugent
Education	Capt. Debra Marks
Legislative	Mr. Jay Powell
1997	
Pilotage and Navigation Safety	Capt. Corliss Nugent
Education	Mr. Bill Lewis
Legislative	Ms. Laura Hunter
1998	
Pilotage and Navigation Safety	Capt. Corliss Nugent
Education	Mr. Bill Lewis

RELATIONSHIP BETWEEN THE HARBOR SAFETY PLAN AND THE AREA CONTINGENCY PLAN

The Oil Pollution Act of 1990 (OPA 90) resulted in the formation of Area Committees and their development of a Regional Oil Spill, and Hazardous Substance Pollution Contingency Plan by the U.S. Coast Guard (Area Contingency Plan). The Area Committees ensure that comprehensive contingency plans are developed for all U.S. waters for response and cleanup of all oil spills. The Area Contingency Plan is the plan for Federal and State actions which center on the on-scene coordinator for response to oil spills. The designated On-Scene Coordinator is the U.S. Coast Guard Captain of the Port. Coinciding with the development of the San Diego Harbor Safety Plan was the update of the Area Contingency Plan.

I. GEOGRAPHICAL BOUNDARIES

"This section shall provide a detailed description of geographical boundaries of the harbor and include large scale charts of the entire harbor area." (CCR §802(b)(2)).

The San Diego Harbor Safety Plan study area includes state waters to three nautical miles from the Mexican border at 32 degrees 32.0'N northward to the San Diego County line at 33 degrees 22.5'N and includes all the navigable reaches of San Diego Bay. These boundaries coincide with the boundaries of the Area Contingency Plan, and include an oil transfer facility at Encina. The San Diego Harbor Safety Plan is primarily concerned with navigational safety of San Diego Bay and its approaches.

Approaches to San Diego Bay entrance are straightforward and can be made from north through west to south-southwest. There are no designated approach lanes to the entrance Buoy "SD". There are submarine safety lanes designated on Chart #18765 and the U.S. Navy does extensive surface, subsurface, and air training off the coast. All live fire and intensively interactive naval exercises are held well off the immediate coastline and do not encroach on the vicinity of the harbor approaches.

The Los Angeles/Long Beach Harbor Safety Committee has convened a subcommittee that will oversee all of the active offshore moorings, including the offshore mooring at Encina. This Subcommittee will include a representative from the San Diego Harbor Safety Committee, who will report back to the San Diego Harbor Safety Committee. A description of the Encina Facility and spill prevention measures is attached as Appendix A.

II. HARBOR CONDITIONS

"Description of existing and expected conditions of weather, tidal ranges, tidal currents (directions and velocities) and other factors which might impair or restrict visibility or impact vessel navigation." (CCR §802(b)(3)(A)).

GENERAL WEATHER, TIDE, AND CURRENT CONDITIONS OF SAN DIEGO HARBOR

San Diego Bay is 10 miles NW of the Mexican border. It is 14 miles long and ranges from a few feet to 42 feet in depth. The bay is considered one of the finest natural harbors in the world, and affords excellent protection in any weather. A low, narrow sandspit, which expands to a width of 1.6 miles at North Island on its NW end, separates the Bay from the ocean.

TIDES

San Diego Bay is free of excessive tidal ranges. The mean range of tide is 4.0 feet at San Diego, and the diurnal range of tide is over 9 feet. A range of 8 feet may occur at the time of maximum tides. Daily predictions are given in the Tide Tables. After the Navy dredging project, tides and currents could change. The changes will be addressed at that time and appropriate recommendations made. The following information was published in the Local Notice to Mariners on 16 July 1996:

> *"The U.S. Army Corps of Engineers (COE) is planning a dredging project for the U.S. Navy in the area of North Island Naval Base in San Diego Harbor. This project call for both deepening and widening the channel to accommodate larger naval vessels. Such actions in the past, in other areas, have resulted in dramatic changes in the observed Tidal Currents of those areas. Once dredging operations commence, the Tidal Current predictions for this region should be considered questionable and potentially dangerous to rely upon....Therefore, once COE operations begin and until such time as a real-time system is installed or a resurvey of the area is conducted, the National Oceanic and Atmospheric Administration, National Ocean Service will be unable to provide accurate Tidal Current predictions necessary for marine safety and navigation in this area."*

CURRENTS

The currents set generally in the direction of the channels. In the vicinity of the entrance the usual velocity varies from 0.5 to an extreme of over three knots depending upon the stage of the tide and weather conditions. South of the end of Zuniga Jetty there is a slight set toward Zuniga shoal on the ebb tide. There is a crosscurrent deflected from Ballast Point--care should be taken while passing Ballast Point because a vessel may take a sudden sheer.

Eddies are usually encountered along the ends of the municipal piers making docking difficult. The velocity and direction of the eddies are irregular, and the greatest care must be exercised by even the most experienced vessel operator. Those unfamiliar with San Diego Bay should not attempt to dock large vessels without a pilot.

WEATHER

In the San Diego Bay area, visibility is reduced to less than 0.5 mile, mostly by radiation fog, on about 3 to 7 days per month from September through April. December is the foggiest month with the worst fog during the late night and early morning hours. Dense fog occurs frequently at North Island and Imperial beach. Fog signal records indicate that, in general, it is foggier around the entrance of the bay than it is in the North sections. For example, the fog signal at Point Loma in December is operating about 20% of the time compared to 10% at Ballast Point. Winds in the area are strongest from November through April when they blow 17 knots or more about 2% of the time. Gales are rare. Wind gusts have reached 50 knots or more during the winter season. Strong winds often have a South component, but they also blow from West and East along the coast and are often affected by local topography, particularly when the flow is off the land. For example, at Imperial Beach, East winds blow 15-20 % of the time from November through March. During the late spring and summer, South through Northwest winds prevail at both locations. However, at the more exposed Imperial Beach, West winds occur up to 25% of the time whereas the flow is more variable at San Diego. By October, the wind regime begins to reestablish itself.

NATIONAL WEATHER SERVICE

The National Weather Service maintains an office at Lindbergh Field Municipal Airport, and barometers may be compared there or by telephone at (619) 289-1212 or VHF Channel 2 (162.40) MHZ.

DESCRIPTION OF CURRENT CHANNEL DESIGN

"Description of current channel design (navigable channel width and advertised dredged depth) and any proposed changes to these plans." (CCR §802(b)(3)(D)).

The dimensions of San Diego Harbor are defined by the 1968 River and Harbor Act (House Document 365, 90th Congress, 2nd Session) and maintained by the U.S. Army Corps of Engineers, Los Angeles District. The channel depths are as follows:

a. 55 feet from Buoy 4 to Buoys 9/10 for a width of 800 feet
b. 47 feet to the carrier turning basin for a width of 600-800 feet.
c. 50 feet in the carrier turning basin
d. 40 feet in Central Bay first section for a width of 600-1900 feet from the turning basin to the Coronado Bridge.
e. 35 feet in Central Bay second section for a width of 600-1900 feet from the Coronado bridge south along the face of the Naval Station piers.
f. 35 feet in the south bay for a width of 600-1350 feet southward from the Central Bay channel.
g. 20 feet in the Chula Vista Channel for a width of 200 feet southward from the South Bay Channel (maintained by the Port of San Diego).

Additionally, two adjacent anchorage areas are included in the harbor design. They occupy the area between Harbor Island and the North Bay Channel. The design depth of the western section is 26 feet and the design depth of the eastern section is 36 feet.

ACCURACY OF DEPTH INFORMATION

"Evaluate programs to determine accurate depth information in navigable channels, anchorages and berths used by tankers, and make recommendations necessary to increase the accuracy of such information." (CCR §802(b)(5)(C)).

DEPTH INFORMATION

The methods, procedures, and frequency that soundings are conducted within San Diego Bay and its approaches are considered adequate.

Channels and Anchorages

The U.S. Army Corps of Engineers determines the depth of navigable channels, anchorages and turning basins defined by the San Diego Harbor Project annually with "conditions surveys." Positioning of the survey vessel, conducted by either the range-azimuth or differential GPS method, is accurate to within five feet in the horizontal plane. Depths are measured by a 442 Innerspace fathometer, which can be read to the nearest 0.1 foot; however, accuracy is considered to be within one-half foot because of wave action.

Maintenance dredging is performed when necessary to restore depths to design specifications. Historically, little change in channel depths has been noted from survey to survey; maintenance dredging typically occurs about once every ten years. Based on the slow rate of silting within San Diego Harbor, the accuracy and frequency of "conditions surveys" are considered satisfactory.

Berths

As San Diego Bay does not have any major tributaries, silting conditions alongside berths used by tankers are negligible. However, maintenance dredging in several locations is planned.

a. U.S. Navy tanker berthing facilities consist of:

(1) The Defense Fuel Support Point at Point Loma, also known as the La Playa fuel pier, primarily served by Military Sealift Command transport oilers;
(2) The Navy Middle "Mike" pier Submarine Base, San Diego, serving the berthing needs of U.S.N.S. oilers: and, .
(3) Various berths at Naval Station.

The U.S. Navy currently has an established program for regular, periodic soundings of depths alongside its berths. Soundings are conducted within a three (3) year cycle; no sounding is over three (3) years old.

b. Port of San Diego commercial vessel berthing facilities used by tanker vessels consist of:

(1) The berths at Tenth Avenue Marine Terminal. Berths 10-3 through 10-8 are maintained at 10.7 meter (35 feet) depths at MLLW and Berth 10-1 and berth 10-2 are maintained at a 9.1 meter (30 feet) depth. Berths 10-7 and 10-8 are maintained at -42 feet. These berths support tanker barges (requiring less than 20

foot depths) that serve the Port's bunker facility. Tanker-ship activity at Tenth Avenue Marine Terminal is very minimal, for example, 5 barges called at Port in 1991.

(2) Berths 24-2 and 24-3 at National City Marine Terminal. These berths are maintained at 10.7 meter (35 feet) depths at MLLW and support occasional tanker barge traffic, requiring less than 20-foot depths, serving San Diego Gas & Electric Company's South Bay Power Plant.

Berths at Port of San Diego facilities are sounded on a periodic basis with a Raytheon Depth Recorder, Model DE-719B, 7245A transducer and a hand-sounding line with a six-inch diameter bottom plate. The Port has resources to sound berths as needed. Soundings at Port facilities are generally accomplished prior to and after any construction, dredging, and facility improvement or maintenance projects.

SPECIAL CHANNEL CONDITIONS

San Diego Bay channel depths are a nominal 39 feet at the entrance and 35 feet to the Naval Station. At the entrance to the buoyed channel from the vicinity of Buoys 5 and 6 to the vicinity of Buoys 9 and 10 there can be swell action which may cause difficulties to inbound vessels.

Language regarding special channel conditions such as wrecks, recreational pleasure craft traffic, and the pilots association and pilot boat was added to the Coast Pilot.

SPECIAL NAVIGATION CONDITIONS

There is a single bridge spanning San Diego Bay. The San Diego/Coronado Bridge has 195 feet vertical clearance over the two middle channel openings with a horizontal clearance of 600 feet. The charts for the Bay show an in-bound lane between piers 18 and 19, and an out-bound lane between piers 19 and 20. It is accepted practice in San Diego Harbor to use the span between 19 and 20 for both directions of traffic, if the channel is clear.

"Description of procedures for routing vessel traffic, and any contingency or secondary routing plans that may be used during port construction and dredging operations." (CCR §802(b)(3)(B)).

The U.S. Coast Guard has the legal authority to restrict movement for special contingencies and has procedures for establishing security and safety zones. Alternate routing of vessels is determined on a case-by-case basis by the U.S. Coast Guard Captain of the Port. This is determined to be adequate by the Committee.

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III. AIDS TO NAVIGATION

"Evaluate the existing aids to navigation systems available to each harbor as established by the United States Coast Guard or other navigational aids as permitted by the U.S. Army Corps of Engineers, and determine the need for any changes." (CCR §802(b)(5)(B)).

EVALUATION

The waters of San Diego Bay are well charted. The charts include extensive depth soundings and depict locations of various wreckages and obstructions. The entrance to San Diego Bay is through a narrow buoyed channel roughly defined by Point Loma to the west and North Island to the east. The controlling depth is MLLW 47 feet from the entrance to the carrier basin and MLLW 36 feet thereafter. Aids to navigation are adequate.

A. Channel Boundary Location

Simulation of Ship Control Problems of Deep Draft Vessels Negotiating the Channel between Ballast Point and Buoy R "20"

The channel inbound from Ballast Point toward Buoy R "20" is necked down as it enters the turn. The combination of the narrowed channel and the entry into the turn poses a ship control challenge for pilots of deep draft vessels. A study was initiated on 19 June 1997 using two interactive ship simulators at Marine Safety International, San Diego by the personal courtesy of Rear Admiral David G. Ramsey USN (ret.) to Capt. Corliss R. Nugent. The study was concluded on 5 August, 1997 after a three phase series of tests as follows:

Phase A 19 June, 1997. Situation 1. - channel as presently configured, two deep draft ships, oil tankers CHELSEA QUEEN, draft 34 feet and ARCO SAG RIVER, draft 35 feet opposing each other inbound and outbound between Ballast Point and Buoy G"19". Exercise was run in both directions three times. Each ship had to shape up for entering the turn and pass port to port in the turn. This situation was safely executed, but it was noted that routine conduct of this evolution would not be advisable.

Situation 2. - channel as presently configured, USS NIMITZ (CVN-68), draft 37 feet and CHELSEA QUEEN, draft 34 feet performed the same evolutions as above. NIMITZ inbound and CHELSEA QUEEN outbound on the first trip successfully negotiated the passage, but only through the most skillful shiphandling by both pilots under conditions of no wind or current. This evolution was beyond the envelope of safe operations. The next trip with NIMITZ outbound and CHELSEA QUEEN inbound was not successful. Conclusion: The present channel can safely be negotiated by one deep draft ship at a time, but not by two in opposite directions, particularly when one is an aircraft carrier.

Phase B 18 July, 1997. Situation - channel widened to the "Green Side" and dredged to 47 feet with the removal of Buoy R"16A" and the resiting of Buoys R"16" and G"17" to make a

gated pair. NIMITZ and ARCO SAG RIVER made four round trips, eight passages, successfully. While it is not expected that two way traffic with aircraft carriers will be permitted by the Navy, the possibility exists that two large ships may meet in the channel, and the capability of safe passage should be ensured.
Conclusion: Widening the channel to the “Green Side” and resiting the buoys would substantially increase the safety factor, although expansion to this side will not relieve the “bottleneck” effect at Buoy R”14" where a hazard would remain.

Phase C 5 August, 1997. Situation - channel widened to the “Red Side”, dredged to 47 feet, Buoy R”16A” and G”17" resited to make a gated pair, NIMITZ and ARCO SAG RIVER made the passage as in Phase B. All passages were successful and were made with ease.
Conclusion: Widening the channel to the “Red Side” and resiting the buoys would also substantially increase the safety factor and would ease the ship handling aspect somewhat more than that in Phase B. However, considerations of the small craft transiting and anchoring practices militate against expansion to the “Red Side”.

Participating pilots: were:
Capt. John Sorenson, Chief Harbor Pilot, U.S. Navy; Capt. Ed Silva, Senior Pilot, San Diego Bay Pilots Association; Capt. Eric Ireland, President San Diego Bay Pilots Association; Capt. Phil Ryan, Member, San Diego Bay Pilots Association; Capt. Corliss Nugent,Retired Pilot, Chair, Navigation Safety and Piloting Subcommittee
Observers: were:
CDR. Jim Watson, USCG, Captain of the Port; Capt. Vic Anderson, Foss Maritime, Chair, Tug Escort Subcommittee; Capt. Debra Marks, Chair, San Diego Harbor Safety Committee

The pilots participating in the test were evenly spilt as to recommendations for modification of the channel to enhance safety. At its regular meeting on 6 August, 1997 the Navigation Safety and Piloting Subcommittee unanimously voted to recommend adoption of an 800 foot wide channel from sea to Buoy R”20" with the elimination of Buoy R”16A” and the repositioning of Buoys R”16" and G”17" to be a gated pair.

Conclusion: A comment regarding the Environmental Impact Statement (EIS) for homeporting three NIMITZ class CVN in San Diego was drafted on 10 September, 1997 requesting that, either as part of the project or as a mitigation measure to offset safety concerns, additional dredging of the navigation channel be included to provide an 800 foot wide channel from sea to Buoy R”20". Further requested was the removal of Buoy R”16A” and the resiting of Buoys R”16" and G”17" to be a gated pair.

Recommendation #1: That additional dredging of the navigation channel be accomplished to provide an 800 foot wide channel from sea to Buoy R”20".

B. San Diego Bay Approach Lighted Whistle Buoy “SD”

Arriving vessels generally steer on Buoy SD for their approach and then navigate a course, leaving the buoy on their portside to line up on the entrance channel. Departing vessels use Buoy SD as a mark for course changes and leave Buoy SD to starboard. This creates a potential close quarters crossing or meeting situation between arriving and departing vessels. Additionally, arriving ships navigating on southerly courses may experience a change

in steering response after rounding Buoy SD because of prevailing sea swell conditions. This may delay the time it takes an arriving vessel to steady-up on its new course entering San Diego Bay and intensify a close quarters situation with vessels departing San Diego Bay. To enhance safety in this area and tomark the seward end of the newly dredged channel just inside the 10 fathom curve a new buoy, Qk F1 R “4" was added.

C. Radio Beacons

During low visibility recreational and fishing boats often converge around buoys and wait for the weather to clear. A problem is created for larger vessels as standard radar cannot distinguish between marks which are buoys and those which are boats. Radio Beacons would alleviate this situation. Two RACONs are now operating on the San Diego/Coronado Bay Bridge and one on the San Diego Bay Approach Lighted Whistle Buoy “SD” .

D. Channel Entrance Range Lights and Buoy Lights

For vessels with low bridge elevations, range and buoy lights are difficult to see at night because of the ambient light of the City of San Diego.

Recommendation #2: The HSC requests that the intensity of the light be increased on the navigational range lights.

E. Zuniga Jetty

The five signs placed at different locations along Zuniga Jetty to mark its location are ambiguous. In low visibility, their similarity of appearance could lead to a misinterpretation of the location of a sign and a resultant inaccurate estimate by a vessel of its location in the main entrance channel. During certain tidal and low visibility conditions, vessels have inadvertently crossed and grounded on submerged sections of the jetty. The Harbor Safety Committee will continue to explore options fro improving visibility for this navigational hazard.

ACTION SUMMARY ON AIDS TO NAVIGATION

The U.S. Coast Guard completed a San Diego Waterways Analysis and Management Survey (WAMS) and finalized their report and recommendations. All earlier recommendations made by the HSC regarding aids to navigation were addressed as part of this WAMS report. The WAMS Executive Summary is attached as Appendix C.

NAVIGATIONAL HAZARDS

“Describe any fixed navigational hazards specific to the harbor and aids to navigation systems in place to minimize risk of contact with these hazards.” (CCR §802(b)(5)(A)).

NOTE: This is not to be used for navigation of a vessel and a mariner is directed to appropriate references for current

information.

The list of possible fixed navigational hazards is listed below. A list of hazards including predominant aids to navigation listed in an order from seaward approaches to the head of navigation within San Diego Bay are attached as Appendix D. The possible fixed hazards should be readily apparent to mariners when viewing current navigational charts in conjunction with reviews of Notices to Mariners and information contained within the United States Coast Pilot. A consolidated listing of existing publicly and privately maintained aids to navigation for San Diego Bay is published in U.S. Coast Guard Light List, Volume VI (Commandant, U.S. Coast Guard Publication P16502.6).

Hazard: Point Loma, West side of entrance, a ridged rocky peninsula

Hazard: San Diego Bay Channel Entrance, decreasing depths to shoreline

Hazard: Zuniga Jetty, East side of entrance, a 1.6 mile long low sandspit

Hazard: Ballast Point, low and sandy, projects 0.4 mile NorthEast from the East side of Point Loma

Hazard: North Island, decreasing depth to shoreline

Hazard: Shelter Island, decreasing depth to shoreline

Hazard: Harbor Island, decreasing depth to shoreline

Hazard: Downtown San Diego Piers, decreasing depth to U.S. Bulkhead Line (shoreline).

Hazard: San Diego-Coronado Bay Bridge, 195 vertical feet over the two middle channel openings with a horizontal clearance of 600 feet

Hazard: South San Diego Bay, decreasing depth to shoreline and piers

IV. ANCHORAGES AND ANCHORAGE MANAGEMENT

Description of limitations of current anchorages (designations, proximity to heavily used fairways or channels) and any plans the harbor has to address those limitations." (CCR §802(b)(3)(C)).

Special Anchorages for U.S. Government Vessels

The administration of these special anchorages is exercised by the Commander, Naval Base, San Diego, California. These are reserved exclusively for the anchorage of vessels of the United States Government and of authorized harbor pilot boats. No other vessel shall anchor in these areas except by special permission obtained in advance from the Commander, Naval Base, San Diego, California.

1. The waters bounded by a line connecting the following points:

Latitude	***Longitude***
32°42’13.2"N	117°14’11.0"W
32°41’12.0"N	117°14’00.3"W

and thence along the shoreline to the point of beginning.

Area is located approximately 100 yards due west of the channel and west of a line extending approximately 351°30' from Ballast Point Light. Depths vary between 34 and 67 feet.

2. The waters bounded by a line connecting the following points:

Latitude	***Longitude***
32°43’25.6"N	117°12’46.1"W
32°43’25.3"N	117°12’52.0"W
32°43’08.2"N	117°12’58.0"W
32°42’57.9"N	117°12’54.0"W

and thence easterly along the northern boundary of the channel to:

32°43’05.0"N	117°11’30.5"W
32°43’27.2"N	117°11’14.0"W

and thence along the shoreline of Harbor Island to the point of beginning.

This area encompasses anchorage berths Nos. 212, 213, 214, 215, 216, and 217 printed on Chart No. 18773 (San Diego Bay) located due south of Harbor Island.

“B” Street Merchant Vessel Anchorage

The waters bounded by a line connecting the following points:

Latitude	***Longitude***
32°43’00.8"N	117°10’36.3"W
32°43’00.8"N	117°11’23.0"W
32°43’05.0"N	117°11’30.5"W
32°43’27.2"N	117°11’14.0"W
32°43’20.2"N	117°10’53.0"W

and thence due east to the shoreline, and thence along the shoreline and pier to the

point of beginning.

Area is located due west from the southwest corner of the “B” Street pierhead and abuts the special anchorage for U.S. Government vessels located off Harbor Island. A segment of the anchorage is within 100 yards of the channel boundary. Depths vary between 19 and 40 feet. Reserved for the use of merchant vessels calling at the Port of San Diego while awaiting a berth. The administration of this anchorage is exercised by the Port Director, San Diego Unified Port District.

Anchorages for General Use

Includes all navigable waters of the harbor except cable and pipeline areas, Special Anchorages, Naval Security Zones, Naval Restricted Areas, the U.S. Coast Guard Safety Zone, Unified Port District Regulated Areas, South San Diego Bay (southward of a line drawn between the mouth of Sweetwater Channel and a point on Silver Strand just northerly of Coronado Cays Crown Isle), and Designated Channels. Additionally, anchoring in Central San Diego Bay (lying northerly of South San Diego Bay and southerly of a line drawn westerly from the South Embarcadero Marina Park fishing pier to the easterly most point of North Island Naval Station in Latitude 32° 42' 10"N) is prohibited except in Special Federal Anchorage A-5 and San Diego Unified Port District designated anchorages. Authorization to anchor in Central San Diego Bay outside designated anchorage areas for limited periods of not more than 72 hours may be obtained by application to the San Diego Unified Port District. Vessels anchoring in the portions of the harbor other than the areas excepted above, shall leave a free passage for other craft and shall not obstruct the approaches to wharves in the harbor.

Small Craft Mooring and Anchorage Areas

Comprised of areas established for longer term anchoring and mooring of noncommercial, recreational vessels. The general locations of these small craft anchorages are away from main ship channel areas and are identified below.

Anchorage Designation	**Location**
A-1	La Playa Cove, Shelter Island Yacht Basin
A-1a, A-1b, A-1c	Shelter Island Roadstead, bayward of Shelter Island
A-2	Shelter Island Commercial Basin
A-3	Laurel Street Roadstead, due east of the Coast Guard Air Station
A-4	Bay Bridge Roadstead, northeast of western terminus of the San Diego Coronado Bay Bridge
A-5	Glorietta Bay
A-6	Naval Amphibious Base
A-7	The California Department of Parks and Recreation has not pursued development of an anchorage at A-7 and it appears it may not be done. Boaters may, however, anchor parallel to the beach between Fiddler’s Cove and Crown Cove. Anchorage in this area is limited to 72 hours a month and requires a permit from

the Harbor Police.

A-8 Sweetwater Anchorage, west of 24th Street Marine Terminal, defined by lighted Buoys A,B,C and D and Buoys E and F.

A-9 The A-9 anchorage, southwest of the Coast Guard station, has been approved by the Coastal Commission and adopted in the Port Master Plan. Boundary buoys will be installed in the area upon completion of the remediation project currently in progress in A-9. A-9 is bounded by the following:

Latitude	***Longitude***
32°43’35.9"N	117°10’02.2"W
32°43’31.5"N	117°11’13.2"W
32°43’26.9"N	117°11’11.0"W
32°43’25.9"N	117°11’07.7"W
32°43’34.8"N	117°10’03.2"W

ANCHORAGE LIMITATIONS

Anchoring depths and anchor swing radii vary between each of the possible anchorage areas within San Diego Bay.

GENERAL PROCEDURES

Berthing for commercial vessels generally is available without delay at the Port of San Diego. When anchoring of a commercial vessel is required inside the harbor, pilots generally assist these vessels to a suitable anchorage.

“Proximity to heavily used fairways or channels and any plans the harbor has to address those limitations.” (CCR §802(b)(3)(C)).

There have been no reported vessel groundings or other incidents of a negative nature in the established anchorage areas. All vessels requiring anchorage have been provided a safe anchorage. While no specific accidents have been caused, two significant concerns were raised regarding a potential conflict. A problem relating to the use of the area west of the channel between a line extending through channel Buoys 17 and 19 toward Shelter Island by various recreational vessels for general anchoring was noted. Such use of this area in close proximity to the channel significantly hinders its potential use by large vessels that may, on occasion, have need to depart from the channel to provide adequate separation between other large vessels as they maneuver to negotiate the turn in the channel between Buoys 16, 16a, and 17. Also, the area surrounding the turning basin at the 24th Street Marine Terminal has numerous wrecks and obstacles that may impair tug escort ability to maneuver.

San Diego Unified Port District Code Section 4.40, North San Diego Bay Anchoring prohibits unauthorized anchorages in North San Diego Bay. Since enactment of this code, all vessel in the area west of the channel and between Buoys 17 and 19 have relocated from this area. The Harbor Police closely monitor this area for vessels that are illegally anchored.

Recommendation #4. Continue clearing hazards in the area west of the channel near the 24th Street Marine Terminal turning basin to allow for tug maneuvering. The HSC supports the ongoing effort of the San Diego Unified Port District to clear the area of hazards.

V. COMMUNICATIONS

"Review and evaluate the adequacy of current ship-to-ship and ship-to-shore communication systems used in the harbor area. Identify any low propagation, or silent areas within the harbor area. If communication deficiencies exist, develop a strategy to address such deficiencies." (CCR §802(b)(6)(A),(B), & (C)).

RADIO COMMUNICATIONS

EVALUATION

Ship-to-ship and ship-to-shore communications within the waters of and approaches to San Diego Bay are conducted almost exclusively on VHF marine radio frequencies in the 156-162 Mhz band. The level of usage is variable with intermittent time spans of congestion on certain frequencies during periods of high vessel activity among recreational boaters, fishermen, military vessels, and commercial vessels. With the exception of the landmass of Point Loma, extending to heights in excess of 400 feet and bordering the west side of San Diego Bay, the topography surrounding the Bay is low-lying and conducive to the line-of-sight propagation of VHF radio communications.

As there is no vessel traffic control system in San Diego Bay, vessels may enter, depart, or move within the Bay without any prior radio coordination or advance communication of their intentions. However, U.S. Naval Station San Diego, call sign "Control 1," maintains a 24-hour per day listening watch on VHF Channel 12 and has information on most U.S. Navy, U.S. Naval Service, and Military Sealift Command vessel arrivals, departures, and intra-harbor movements. The Port's pilots normally advise "Control 1" of their in-progress piloting activities on board commercial vessels and receive current naval vessel movement information from "Control 1." The pilots then coordinate directly with other vessel traffic via VHF radio to discuss navigational matters.

Vessels moving in San Diego Bay can expect to encounter U.S. Navy vessels during their transit. The U.S. Navy vessels make extensive use of VHF Channel 12 for ship-to-ship communications, in addition to monitoring Channels 13 and 16. For

security reasons, U.S. Navy submarine movements within the main entrance channel between points outside the Bay to the submarine base near Ballast Point may occur under radio silence or with abbreviated radio communications with other vessels operating in their vicinity. The U.S. Navy submarines make use of Channel 14 to communicate with assisting tugboats, pilots, and shore units.

The U.S. Coast Guard San Diego Group Operations Office and San Diego Unified Port District Harbor Police maintain a 24-hour per day listening watch on VHF Channel 16. The services of Port pilots are normally arranged in advance of ship arrivals by ship's agents, however, requests for a pilot can be relayed to the pilots by calling the San Diego Harbor Police on VHF Channel 16.

A growing use of cellular telephone services to support ship-to-shore communications has been noted. The communications systems used in the harbor area are considered to be adequate.

CURRENT USAGE, VHF MARINE RADIO CHANNELS

The following table outlines the authorized and prevailing usage of VHF Marine Radio Channels within San Diego Bay and identifies the channels normally monitored by certain radio equipped vessels/users that frequent San Diego Bay.

CHANNEL	AUTHORIZED USE	CUSTOMARY USERS
16	Distress, Safety, and Calling	All VHF-Equipped Vessels
09	Calling	Commercial and Non-Commercial Vessels
06	Intership Safety	
12	Port Operations	High usage by U.S. Navy for ship-to-ship and ship-to-shore communication USN's "Control 1."
13	Navigational, Bridge-to-Bridge	
22	Coast Guard Liaison	
77,67	Port Operations	Pilots/Tugboats
19a	Commercial	Foss Maritime (Pactow Tugboats)
80	International	Sportfishing Boats
73,80	Port Operations, Commercial	Harbor Excursion Vessels
14	Commercial, Port Ops	U.S. Navy Submarines
10	Commercial	Harbor Tug and Barge R.E. Staite Eng.
73	Port Operations	USN Fleet Training Group Vessels
11	Commercial	SeaTrac
7a	Commercial	NASSCO
68, 69, 71, 78	Non-commercial (Ship-to-Ship or Ship-to-Shore)	Working Channels for Recreational Vessels
28, 86	Public Correspondence	San Diego Marine Radio Telephone Operator

RADIO COVERAGE

Present coverage of the San Diego Bay area by VHF Marine Radio is considered

adequate. There are no radio communication silent areas or blind spots within the harbor area.

COMMUNICATIONS PROBLEMS

1. Interference

a Improper and unauthorized use of the VHF Marine Radio channels by certain users has created sporadic interference for authorized users. As an example, transmissions from non-English speaking users have interrupted pilots working with tugs on VHF Channel 77 and 12. Because of language barriers, persons causing interference often cannot readily be advised to stop improper use of a radio channel.

b. The improper use of VHF Channel 13, the designated channel for the Vessel Bridge-to-Bridge Radiotelephone Act, to transmit other than navigational-related information has been reported. This channel is designated for the exchange of navigational information to facilitate safe passage between certain size and type of vessels. Operators on these vessels are required to maintain a listening watch on Channel 13 and, when necessary, transmit and confirm the intentions of their vessel and any other information necessary for the safe navigation of vessels.

c. Interference from radio transmissions that carry over from other ports, including Los Angeles/Long Beach, has been reported. This might be caused by vessels transmitting with their radios set on high power settings.

2. Slow Response or Non-Response to Call-Ups

Commercial vessels in San Diego Bay may, on occasion, experience slow response from military vessels when they call-up military vessels on VHF Channel 13 or 16. U.S. Navy submarines may not acknowledge call-ups. VHF Channel 12 is used as a primary channel for ship-to-ship communication between Navy ships and shore units.

3. Confusion Caused by Military Parlance

Military vessel operators may use military idioms when communicating with commercial vessels. As an example, a military vessel operator may inquire of a commercial vessel “Interrogative your intentions” in lieu of stating, “What are your intentions?”

USER EDUCATION

Recommendation #5: Educate marine VHF radio users about the authorized use for the various radio channels (highlighting channels recreational boaters are not allowed to use), and proper radio power settings to limit transmission carry-over (interference).

This may be accomplished by publication of articles in local marine newspapers and Coast Guard Notices to Mariners, posting of signage at boat ramps, USCG Auxiliary and Power Squadron training classes, and news media public service announcements. In addition, request that the USCG and OSPR include this information in their public safety programs.

ENFORCEMENT PROGRAMS

Recommendation #6: Encourage submission of violation reports by the Harbor Police, USCG, and Bay Pilots identifying violators to the FCC for enforcement.

EXPANDED "CONTROL 1" TYPE SERVICES

Recommendation #7: The Harbor Safety Committee through the Nav Safe Subcommittee is monitoring the status of a plan to implement a vessel traffic information system in San Diego. See also VTS discussion in Section VIII.

The U.S. Navy's "Control 1" in the meantime continues to provide vessel traffic information to commercial vessels. The U.S Navy's "Control 1" has relocated to 32nd Street Naval Station, San Diego. "Control 1" no longer has a view of vessel traffic within the Bay.

VI. VESSEL TRAFFIC PATTERNS

EVALUATION

The San Diego shipping channel consists of a main channel with no branches or stems in its entire length to 24th Street Terminal. There are approximately 9,000 deep draft vessel transits of the Bay per year. There is one major choke point at Ballast Point near the entrance. This is the narrowest point in the channel and just inside is the U.S. Naval Submarine Base. It should be noted that submarines can be getting underway or maneuvering to berth at all hours of the day. In poor visibility conditions submarines can often paint on radar as a small contact due to their inherent construction characteristics of a small conning tower above water with approximately 90% of the remainder of the vessel submerged.

Bayward of the U.S. Submarine Base, on the port hand, is the Naval Fuel Pier where contract tankers and, occasionally, naval combatants load and discharge fuel. To starboard in this same stretch is a naval ammunition pier on North Island. At the end of Shelter Island near the entrance range markers is the outlet from the Shelter Island Yacht Harbor. A large measure of the small craft traffic will be found in this vicinity, particularly on weekends. At the other end of Shelter Island is the entrance to Commercial Basin where the majority of sportfishing and headboat traffic is berthed.

After an eastward leg, the channel enters a turning basin area before heading toward the center spans of the San Diego/Coronado Bridge. Bordering on this turning basin are the Embarcadero with its Cruise Ship Terminal and adjacent to the Naval Supply pier. Across the channel and turning basin area are the Naval aircraft carrier berths on Naval Air Station, North Island .

The next channel leg toward the Coronado Bridge has the city's 10th Avenue Marine Terminal on the port hand. Between this section and on through the bridge, commercial shipyards give way to the U. S. Naval Station; all of these activities on the port hand. The channel then narrows, then proceeds to the 24th Street Terminal.

It should be noted that the San Diego/Coronado Bridge has a vertical clearance of 195 feet over the two middle channel openings with a horizontal clearance of 600 feet. The charts for the Bay show an in-bound lane between piers 18 and 19, and an out-bound lane between piers 19 and 20. It is accepted practice in San Diego Harbor to use the span between 19 and 20 for both directions of traffic, if the channel is clear. **The following discussion of San Diego Bay Waterway Traffic is excerpted from the *U.S. Coast Guard's Waterways Analysis and Management Survey Report-Executive Summary.***

Commercial Vessels

On average, there are three large commercial vessels (bulk freighters, container ships, roll on/roll off, or cruise ships) in the port at any one time. RO-RO's call on San Diego at a frequency of three vessels per week. A container ship and various bulk freighters call on San Diego on a monthly basis to on-load and off-load cargo. Barges also transit the waterway delivering various commodities.

A commercial fishing fleet, consisting mainly of purse seine fishing vessels, operates out of Shelter Island Yacht Basin. Commercial sport fishing vessels are plentiful in these harbors. Though commercial vessel traffic in San Diego harbor is light, the port authorities have reported a 300% increase in shipping over their past fiscal year. The Unified Port is undertaking several facility development projects including new reefer warehouses, a chemical export facility, a new cruise terminal, and a shallow-draft commercial pier. Metric tons of cargo handled for the year August 1992-1993 totaled 570,517 tons. Metric tons for the year August 1993-1994 exceeded one million. The Board of Port Commissioners expects commercial traffic to continue to

increase as development and marketing of the port's facilities gets underway.

Military Vessels

Military vessels make up the bulk of large vessel traffic in San Diego harbor and frequently transit the waterway enroute to berths at the 32nd Street Naval Station, the Naval Pier (south of Broadway Street pier), the North Island Naval Air Station, the submarine base at Ballast Point, and Amphibious Base Coronado in Glorietta Bay. Naval vessels of all classes, from 50' long amphibious landing craft to 1115' long aircraft carriers, can be found in the harbor. Landing craft and smaller vessel usually moor at the amphibious base in Glorietta Bay. Aircraft carriers moor at piers along the air station, while the bulk of the fleet moors at the 32nd Street Naval Station. U.S. Naval Service vessels moor downtown at the Naval Pier adjacent to the U.S. Naval Supply Center.

There are two Coast Guard 110' patrol boats stationed at Point Loma. The Coast Guard station northeast of Harbor Island has two 41' utility boats. Various classes of cutters frequent San Diego for training purposes and usually moor at the Naval Pier downtown or at the 32nd Street Naval Station.

The U.S. Navy houses their Afloat Training Group at the 32nd Street Naval Station. ATG trains and tests all U.S. Military ships larger than 110' feet in length. These tests are administered through a program called Tailored Ship Training Availability. TSTA is conducted while the vessel is underway, at anchor and moored. The testing vessels normally anchor south of Harbor Island. Underway drills are conducted outside of San Diego Bay. Drills and training that can be conducted pier-side are conducted at either the 32nd Street Naval Station or at North Island Naval Air Station.

Recreational Boating

Recreational boaters for the San Diego/Mission Bay area have been placed at 200,000. Mission Bay is used exclusively by recreational boaters. Marinas inside San Diego harbor are located at Shelter Island, Harbor Island, Seaport Village/Inter-Continental Hotel, Chula Vista Harbor, Coronado Cays, and Glorietta Bay.

Considering the vicinity of the marinas to the main shipping channel, recreational boaters present a hazard to navigation to larger commercial traffic restricted in their maneuverability. There have been numerous complaints from both the Navy and the San Diego Pilots about Inland Navigational Rule 9 violations in which recreational boaters obstruct the safe passage of larger vessels confined to a narrow channel.

The following table is a sample representation of annual commercial and military vessel traffic for the Port of San Diego.

VESSEL TYPE (Largest Vessels)	DIMENSIONS			VESSEL MOVEMENTS
	Length		Beam	Draft
Cargo vessel type: Bulk Container Vessels General Cargo Roll On/Roll Off	1,000’	106’	41’	932 (1998)
Passenger	1000'	106'	34'	57,873
Military	1115’	134’	39.0’	11,184(1998)
Other Vessels **Research, survey, Etc.**				
Total Annual Movements:				**69,920**

Note: *Tug traffic was not included in the above statistics since inner harbor tug movements alone exceed 7,000 for a typical year.*

Note: 1997 Passenger counts are projected for November and December of 1997.

Additional information regarding Vessel log reports, a summary of U.S. Navy ship movements, Port District tonnage reports, and data complied regarding oil transport in the harbor are attached as Appendices E - I.

SMALL VESSEL TRAFFIC EFFECTS ON SAFETY

“Assessment of current safety problems (small vessels, sailing vessels, or vessels engaging in fishing as is relates to violation of Rule 9 (Narrow Channels Rule) of the Inland Navigational Rules Act (33 USC 2009).” (CCR §802(b)(4)(C)).

“Assessment of the need for establishing or upgrading the existing educational or public awareness programs for the waterway users.” (CCR §802(b)(4)(F)).

As host of the 1992 America’s Cup Yacht race, San Diego Bay established itself as a sailing and yachting center in California. The presence of a large kelp bed and

excellent ocean fishing supports a large fleet of dive, whale watching, bottom and surf fishing vessels in San Diego Bay. These vessels use the same navigation channel as the larger vessels when entering and exiting the Bay. In addition to ocean going small vessel traffic, there is significant traffic within the Bay. The vast majority of small vessel recreational traffic is encountered on the weekends in San Diego Bay. During the summer months, on Wednesday evenings, there is a large (and largely informal) gathering of sailboats for a race known locally as the “Beercan Regatta”. This race can virtually cover the entrance area with sailboats from about 17-2000 local time, particularly in sunny weather and no overcast conditions.

Existing conflicts and potential problems associated with the interface between small recreational and fishing vessels, and larger commercial and military vessels were discussed at length by the Committee. Although there is ongoing communication between recreational boaters and commercial/Navy interests in the Bay, the Committee recognized the need for continuing efforts to expand and improve this dialogue and to enhance this relationship in order to ensure the safety of both small boats and shipping. In this light, the Harbor Safety Committee has explored, in depth, with representatives of recreational boaters, commercial interests, San Diego Bay Pilots, U.S. Coast Guard, and the U.S. Navy, means to address these areas of conflict. The Committee found the following to be primary sources of existing difficulty during navigation in the Bay.

1. Failure of recreational boaters to recognize the limitations of the large vessels regarding maneuverability and depth restrictions that confine their safe navigation to the main ship channel.

2. Failure of some recreational boaters to know or respect the Rules of the Road and Rule 9 (Steering and Sailing Rules-Narrow Channels).

3. Some members of the boating public operating boats in an unsafe manner.

4. Sailboats, racing and otherwise, interfering in the passage of larger vessels and unwittingly getting into the wind shadow of the larger vessel which causes the sailboats to lose maneuverability.

5. Races (with or without permits) with courses that cross the navigation channel during use by a larger vessel.

6. Recreational fishermen fishing in the channel and near the channel markers.

7. Failure of some recreational boaters to monitor and use proper channel for radio communication.

BOATER EDUCATION

The Chair of the HSC appointed an Education Subcommittee to evaluate and implement the following recommendations concerning the need for establishing and/or upgrading existing educational or public awareness programs for all waterway users. A focus of the Committee's efforts has been on the interaction of small vessels and ships.

RECOMMENDATIONS

The recommendations below are designed to reach the recreational boaters and encourage them:

To know and respect the Rules of the Road;
To know and respect Rule 9; and
To take safe boating classes offered

Recommendation #8: Provide an educational program to successfully improve navigation safety in the Bay that has the following objectives: 1) increase awareness of navigation rules, safe operation, and limitations of large vessels; 2) improve education standards of recreational boaters; and 3) targeted enforcement.

The Boater's Operators Accreditation and Training Act (B.O.A.T. Act) seeks to require mandatory education for boat operators to insure the safest waterways possible. B.O.A.T. Act text is attached as Appendix J. In addition to the actions listed below, the HSC pursued activities to promote usage of a video camera to document Rule 9 violations and generated a survey to evaluate boaters' attitudes toward the B.O.A.T. Act and/or education and licensing of boat operators.

Recommendation #9: Post signs in marinas, boat launching ramps, and frequently used boating areas that warn of the danger of boating near large vessels and remind recreational boaters of the importance of Rule 9. These signs will contain two or three graphics depicting the result of interfering with a large ship and simple text reminding boaters of their obligation to respect Rule 9.

The HSC Education Subcommittee developed a Rule 9 Education Program. A flyer was developed and published in newspapers, on flyers, and marina signs. Funds have been secured from BOAT/US for permanent signs at boat launching ramps and stickers for rental boats. In addition, boat rental agencies were contacted for their input.

Recommendation #10: Request that OSPR urge the California Department of Motor Vehicles (DMV) to continue to include Safe Boating flyers with each boat registration, reminding vessel owners of rules of the road and safe boating

practices.

The Full Committee adopted proposed legislation which is attached as Appendix J.

Recommendation #11: Publicize the availability and list of insurance agencies offering discounts on insurance rates to those boaters who graduate from USCG Auxiliary or Power Squadron Safe Boating classes. Model "good boater" incentives on existing auto "good driver" rates.

The HSC Education Subcommittee researched this item and attempted to bring it to the attention of recreational boaters.

Recommendation #12: Request the *San Diego Log* and the *Waterfront News* feature weekly "Do You Know...." pointers column on proper boating rules, environmental tips regarding safe boating in San Diego Bay. These would be selected from and provided by USCG auxiliary materials, *Port District Safe Boating Guide*, Environmental Health Coalition's *Baywatch- A Guide for Boaters*, and other existing sources.

Several articles have been published in San Diego region newspapers regarding the activities of the Harbor Safety Committee, the Rule 9 education program, and features of individual Harbor Safety Committee members.

Recommendation#13: Convene a meeting as part of "Safe Boating Week" with OSPR, Coast Guard, Pilots, yacht club racing committees, and recreational boaters to evaluate anticipated race courses for the season, potential impacts on large vessel traffic, and to discuss ways to avoid conflict in the channel.

Recommendation #14: Maintain and update a list of agency speakers and topics to be updated each year during the annual review of this plan. List to include agencies, phone numbers, and suggested topics upon which the group is prepared to speak. Make list available to public groups, marinas, yacht clubs, other boating groups to raise safety issues and educate about the potential problems in the Bay.

A Speaker's List is updated annually.

RECOMMENDATIONS TO IMPROVE QUALIFICATION STANDARDS

Recommendation #15: Request the DMV to require non-professional licenses, similar to automobile drivers licenses, for all boat operators. Funding could be provided through DMV registration fees.

The Full Committee adopted proposed legislation which is attached as Appendix J. The Boater's Operators Accreditation and Training Act (B.O.A.T. Act) seeks to require mandatory education for boat operators to insure the safest waterways possible.

Recommendation #16: Request that OSPR require rental agencies on the Bay to require all renters to read and initial (indicating understanding) of Rules of the Road, Rule 9, speed limits, Wake Rules, and boating under the influence regulations prior to execution of the rental agreement.

Members of the HSC Education Subcommittee have made initial contacts with boat rental agencies and distributed the Rule 9 educational flyer for their use and promotion. Rule 9 signs were also posted at several marinas.

ACCIDENTS/NEAR ACCIDENTS

"History and types of all accidents and near-accidents which have occurred in the Harbor in the past three years and any corrective actions or programs taken to alleviate recurrences. For purposes of this subsection, "near-accident" shall mean all situations where a risk of collision as defined by 33 USC 2007 existed." (CCR §802(b)(4)(B)).

Accidents:

The most recent condensed USCG accident reports for three years is attached as Appendix K. Anecdotal evidence supports that there have been many close calls.

There are strict reporting requirements for casualties and potential casualties already in place (46CFR4.03 and 4.04). Any violations of the Inland-International Navigation Rules that result in a near collision, grounding, or other hazard to the Port must be reported to the Coast Guard Marine Safety Office for investigation, potential penalty and the capturing of lessons learned.

Near Accidents:

There are no clear guidelines for reporting near accidents if they do not result from violations of the Rules of the Road. That they do occur is, of course, a given. Tabulations of types of traffic, cargo, oil spill totals and unofficial narratives of near-accidents appear in Appendix L.

Representatives of the five Harbor Safety Committees and the U.S. Coast Guard met in an attempt to reach agreement on a uniform definition of "near miss" incidents.

All five Harbor Safety Committees (San Diego, Los Angeles/Long Beach, Port Hueneme, San Francisco, and Humboldt) have now agreed to the following definition:

> *A reportable 'Near Miss' is an incident in which a pilot, master or other person in charge of navigating a vessel, successfully takes action of a 'non-routine nature' to avoid collision with another vessel, structure, or aid to navigation, or grounding of the vessel, or damage to the environment.*

The next step is to identify, collect and correlate statistical data on near misses in a consistent manner within California, and to encourage the timely reporting of such incidents so that, by analysis, improvement to the safe management of vessel movements in the State's waterways may be recommended and implemented.

The Committee fully supports and will continue to participate in the joint state-wide endeavor of all five Harbor Safety Committees and the U.S.Coast Guard to develop a standardized system for reporting and recording data on "near misses."

"*Description of the types of vessels which call on the ports or facilities within the harbor area, and identification of the types of cargo transported on the vessels, and a determination of the amount of oil annually (use 3-year average) shipped into or from the ports or facilities within the harbor."* (CCR §802(b)(4)(A)).

Several types of cargos frequent the Port of San Diego. Cargos include: lumber, newsprint, fertilizer, fresh, frozen, and canned foodstuffs, automobiles, palm oil, minerals, and fuel oil. The most common large vessels in the harbor are cruise/ passenger ships and naval vessels. The specific reports on Port of San Diego Tonnage and Vessel Arrivals by Classification since fiscal year 1986/87 can be found in the Appendix H. The Port of San Diego Vessel Log Reports for April 1991 to April 1992 and summary of petroleum cargos are included in the Appendix D as a representative year.

The oil and fuel that move through the Bay are primarily a result of naval operations where oil and fuel may transit the harbor several times for naval exercises. From 1989 to 1991, between 4.8 and 5.9 million barrels of oil were imported, and approximately 38 million barrels of oil transited the harbor aboard approximately 30 navy tankers per year. The San Diego Gas and Electric Power plant also receives tanker oil shipments on an occasional basis.

U.S. Navy ship, Foreign ship, service craft, and tug movements are summarized in Appendix F.

"Current procedures for routing vessels during emergencies or other contingencies which impact navigation." (CCR §802(b)(4)(D)).

The U.S. Coast Guard has the legal authority to restrict movement for special

contingency and has procedures for security and safety zones. Alternate routing of vessels is determined on a case-by-case basis by the Captain of the Port. This is determined to be adequate by the Committee.

"Review of existing and proposed federal, state, and local laws, regulations or ordinances affecting the harbor area to determine a need for any change." (CCR §802(b)(4)(E)).

During their deliberations the HSC reviewed the various jurisdictional issues and laws governing vessel movement in the Harbor. Recommendations are made throughout the Harbor Safety Plan regarding the support by the HSC to change various federal, state, and local laws. Most of these recommendations apply to navigation on the federal and state level, and mooring ordinances on the local level.

A compendium of California statutes relating to oil spill prevention and response is available from the California Department of Fish and Game Office of Oil Spill Prevention and Response Legal Unit. A copy is available for public review at 1717 Kettner, Suite 100, San Diego, CA 92101.

VII. TUG ASSIST/ESCORT

The San Diego Harbor Safety Committee adopted Draft Tug Escort Regulations. They are attached as Appendix M.

Recommendation 16-A: As a result of the 1997 review of the Harbor Safety Plan the Committee made the following recommendation for a change to the Draft Tug Escort Regulations: Modify section 852.4 (i) (2) to read *A tanker shall not be required to engage in escort services when it is carrying less than 5% of the vessel's deadweight tonnage in oil or petroleum products, and is in ballast and inert or gas-free*.

EVALUATION

The area with a need for tug escort for petroleum product transportation embraces over 12.8 nautical miles of navigable waters and reaches from the San Diego Entrance Buoy to 24th Street Terminal. Considerations of the ecology, shoreline developments, industries, economics, present technology, available equipment, local operations, and weather and sea conditions are among the matters considered. Development of a practical, effective and economic plan to increase the transit safety and spill prevention of petroleum products upon the waters and coast line of the San Diego Harbor area requires a comprehensive analysis of all the above parameters.

The present commercial procedure for inbound tank vessels is for the assisting tug(s) to meet the vessel at Buoys 5/6 or as otherwise directed. Tugs assisting outbound tank vessels are generally released after the ship has cleared Buoys 5/6 and is headed fair.

When and how the tug(s) are made fast to both inbound and outbound vessels and when tugs are released are factors determined by the Pilot and/or Master. These decisions depend on terminal location, vessel size, other vessel traffic, weather, currents and other varying factors.

Tank vessels proceeding to or departing from the B Street anchorage are generally not assisted by tug(s).

The majority of petroleum products transported in San Diego Harbor are JP-5 and DFM. The main import destination is the Naval Fuel Depot, La Playa. These oils are then transferred to various military vessels as cargo and/or service oil. These vessels operate in and out of the harbor on regular local training exercises and other operations.

WEATHER AND SEA CONDITIONS

Approaches. The approaches to San Diego (from sea to buoys 5 and 6) and the main channel entrance (buoys 5 and 6 to buoys 9 and 10) are open roadsteads. Ground swells and seas can combine to a sea state reaching 15' with isolated reports of 20'. The recorded minimum sea state is 1.378', maximum sea state is 15.388' and mean sea state is 3.688'. Ground swells from the Southwest to West and largest ground swells from the West to Northwest can reach in as far as buoys 9 and 10. Extreme sea states from the Southwest can be felt as far in as the Naval Fuel Depot at La Playa.

Inner Harbor. All other inner harbor areas are not subject to ground swells. On rare occasions extreme weather from the southwest across the longer reaches of the South Bay can generate a sea state of 4' in an area from northern 32nd Street Naval Station to 10th Avenue Terminal.

Wakes. Wakes from large and small vessels are encountered in all areas of the harbor. The greatest amount of wake activity is in the Ballast Point area and diminishing as one proceeds farther in the harbor down to the 24th Street Terminal.

Wind. Prevailing winds during winter months is Northwest to North, force 4 (11-16 knots). Prevailing winds during summer months is West to Northwest, force 4 (11-16 knots).

Currents. Calculated tidal currents of various berths within San Diego Harbor are:

NFD (Naval Fuel Depot): up to 2.4 knots
NSC (Naval Supply Center): up to 1.8 knots
10th Avenue Terminal: up to 2.1 knots
24th Street Terminal: up to 1.2 knots

TUG EQUIPMENT

A minimum of four commercial ship assist tugs assigned to San Diego Harbor are of the conventional twin screw design, owned and operated by Foss Maritime. The available hp/bollard pull is from 2,000 hp (27 t bp) to 2400 hp (28 t bp), with an average of 2,062 hp (25.5 t bp). The fleet has an average age of 17.5 years and average length of 80.5'. All of these tugs are equipped with an operable tow winch fitted with wire(s) and all tugs are fendered for ship assist.

These tugs perform both ocean and harbor services and are occasionally rotated between other ports. Some of the physical designs preclude their use in extreme flair and counter situations and in tight quarters.

Six additional tugs are operated by Harbor Tug and Barge Co. and West Coast Marine. Their available hp/bollard pull is from 400 hp (10.3 t bp) to 1,250 hp (15 t bp). They have an average of 792 hp (10.5 t bp). The fleet has an average age of 15 years, and average length of 51.9'. They are used in barge moves/assists, general harbor towing, dead ship assists, and smaller ship assists.

Six 2,400 hp twin screw tugs and two 2,000 hp single screw tugs are berthed at the Naval Station San Diego. These tugs are dedicated to naval operations except in emergency situations. All are fendered for ship and submarine assist.

Refer to the Tug Escort Inventory on page 39 for a detailed description of the tugs in the San Diego Harbor.

It is the opinion of this committee that the tugs available in San Diego Harbor provide a sufficient selection of sizes, shapes and power so that, including all the committee recommendations, any tanker now using the port can be safely handled.

STEERING AND STOPPING EFFECTIVENESS OF TUGS

A tug's effectiveness in steering and controlling an assisted vessel is affected by a number of variables. Factors such as, but not limited to, the ship's size, tonnage, draft, handling characteristics and speed, conditions of currents, available water, wind, width of berth, and the tug's maneuverability, rudder power, push/pull capabilities are among the variables. While some conditions render steering effectiveness as marginal, the Pilots have demonstrated the ability to handle virtually all conditions.

The majority of escort tasks will be of relatively short durations, projecting that the escort tug(s) will also serve as the assist tug(s). Both calculated stopping power needs and local knowledge on assist effectiveness of existing equipment are major considerations in recommending the number and total power of escort tugs.

Traditionally the push/pull capability of tugs has been measured by the engine manufacturers indicated horsepower. A more accurate assessment is by “bollard pull” testing. Such testing is conducted by connecting a tug to a shore side dynamic measuring device and applying full tug’s power in both the ahead and astern modes. The tugs push/pull capability is indicated by the measuring device in a designated measurement standard.

TUG MANNING

The current manning level practices in San Diego for tugs of 400 hp and over are from 2 to 9 personnel, consisting of at least one operator and the rest in the deck and/or engine departments. The specific number is dependent on tug size, power, deck equipment, job function, and contractual requirements or other policies. All personnel meet or exceed federal licensing or certification requirements.

The Committee finds that the current manning levels for harbor operations are sufficient to perform the necessary work involved with escort services. In any event, no tug should engage in escort services with less than a crew of two.

1996 ESCORT TUG INVENTORY

Tug:	adv hp:	bol pl:	yr blt:	lng:	bm:	dr:	gt:	tow wire:	fend:
CERTIFIED									
FOSS									
Pac Knight *tf	2000	26.1	80	76	26.5	11.5	106	1	yes
Pac Queen	2000	27	80	76	26.5	11.5	106	1	yes
Catherine F. t	1850	20.5	67	74	25	9	119	1	yes
Pac Viking t	2400	23.1	78	96	26	13	94	2	yes
NOT CERTIFIED									
HARBOR TUG & BARGE									
Feather River *tfd	1250	n/a	n/a	64.1	26.1	12	136	n/a	n/a
Metola A t	1100	15	n/a	66.5	15.6	8	47	n/a	yes
Seahorse t	600	10	54	56.5	15.6	8	47	n/a	yes
WEST COAST MARINE									
Harbor Cmdr t	1000	10.3	92	40	16	6.5	n/a	n/a	n/a
Harbor Chief t	400	8	87	56	14	3	n/a	n/a	yes
George H s,f	400	9	81	38.5	10.8	5.5	13	n/a	yes
CHOUEST All six Chouest Tractor Tugs have the following specifications.									
Six Chouest Tractor Tugs t,zt	2400	37	94	90	33	18	265	no	yes

LEGEND
*: nozzled
f: flanking rudder
t: twin screw
s: single screw
z: Azimuthing propellers (“z-drive”)
zt: Azimuthing propellers, tractor (propellers “forward”)
double underline: estimate
Note: all public/contracted tugs are fendered for U.S. Navy submarine assist.

EVALUATION REPORTS

Following OSPR acceptance of the PLAN, the members of HSC Tug Escort Subcommittee will meet annually for the purpose of reviewing the effectiveness of the Tug Escort recommendations. Items of review shall include, but not be limited to, accident reports and near accidents, oil spills, tug inventory update, bollard pull testing data, introduction of advanced technology or equipment, and input from Pilots, tug Masters, representatives from towing industries, builders and other interested parties.

The HSC shall generate a written report including the effectiveness and/or any known problems of the current plan, any concerns not addressed, and any new proposals or modifications.

VIII. VESSEL TRAFFIC SERVICE (VTS)

"Provide recommendations based on the specific needs unique to the harbor, regarding the establishment or expansion of VTS systems for the harbor area." (CCR §802(b)(9)(A)).

San Diego Bay does not have a Vessel Traffic Service. While the current system of communications and cooperation between the major commercial entities, the San Diego Bay Pilots, and the Navy's "Control One" organization seems adequate, all are in agreement that there is room for improvement.

Recommendation #17: The HSC strongly recommends that a system to facilitate an exchange of information regarding vessel movement be established in San Diego Harbor. This recommendation is being fulfilled.

This recommendation is made for the following reasons:

1. The current system for advising of traffic "on the move" in the harbor is voluntary and informal. There is no central authority for advising ship movements within the Bay and no single entity to which to report such movements. While this may be adequate for current traffic levels, it is hardly "fail-safe".

2. The future of San Diego Harbor includes increasing commercial and naval traffic. Commercial shipping is expected to increase due to additional cruise ship, fruit carrier, bulk carrier, and auto carrier calls. Due to the deactivation of other home ports there may be a change in the number of Navy ships homeported in San Diego Bay.

"Evaluate whether establishing or expanding a VTS system would serve to reduce vessel accident rates." (CCR §802(b)(9)(B)).

It is the opinion of pilots, commercial entities, and others, that a coordinated communication system would smooth the movement of shipping and eliminate delays. It will allow advance planning of both departure/arrival times and better planning of the actual passing of ships in the channel at the safest and most opportune point. These improvements will significantly reduce the risk of an accident.

"Provide recommendations for funding VTS systems and other projects."
A letter of Agreement has been executed between Core Partners, San Diego Bay Pilots, US Coast Guard, U.S. Navy, San Diego Unified Port District, and OSPR regarding a plan to implement a vessel traffic information system for San Diego. Until such a system is established the U.S. Navy continues to provide vessel traffic information to Navy and commercial vessels in the bay.

IX. BRIDGE MANAGEMENT REQUIREMENTS

"Assess the current schedule for bridge openings, the adequacy of ship-to-bridge communications, and the physical limitations affecting vertical and horizontal clearance." (CCR §802(b)(7)(A)).

There is a single bridge spanning San Diego Bay. The San Diego/Coronado Bridge has 195 feet of vertical clearance over the two middle channel openings with a horizontal clearance of 600 feet. The charts for the Bay show an in-bound lane between piers 18 and 19, and an out-bound lane between piers 19 and 20. It is accepted practice in San Diego Harbor to use the span between 19 and 20 for both directions of traffic, if the channel is clear.

HSC letter dated 3/17/93 and USCG letter dated 3/29/93 to Mr. Jesus Garcia, District Director, California Department of Transportation, regarding proposal to replace/ repair communication control system on the Coronado Bridge and other Harbor Safety Committee recommendations regarding aids to navigation are attached as Appendix N.

X. COMPETITIVE ASPECTS

"Identify and discuss the potential economic impacts of implementing the provisions of the harbor safety plans; and describe the significant differences in the restrictions that could vary from port to port within the harbor area." (CCR §802(b)(11)(A), & (B)).

The Harbor Safety Committee for the Port of San Diego has determined that the Harbor Safety Plan outlined herein should have a minimal additional economic impact upon the maritime industry, the Port Authority, tenants and users of the Port, and the surrounding community.

Nothing in the San Diego Harbor Safety Plan would put the Port of San Diego at a competitive disadvantage with other ports within the United States. However, as with all long range outlooks, we do suggest the possibility of future unknown fiscal impacts on the Port, the maritime industry, and the local community, based upon needs, requirements, or legislation that are all unknown at this time.

An evaluation of the economic impact of the San Diego Harbor Safety Plan will be conducted as recommendations are made and implemented. It was the determination of OSPR that the tug escort regulations did not impose a significant economic impact.

XI. PROJECT FUNDING

"Provide recommendations for funding VTS systems and other projects." (CCR §802(b)(10)(A)).

Recommendation #19: The educational programs could be funded through a variety of funding sources.

A grant was obtained from BOAT/U.S. which funded development and distribution of 250 laminated signs for posting in marinas , four permanent signs for posting at boat launch ramps, 1,000 black and white rule 9 flyers for distribution by regulators, and production and copying costs for a video to demonstrate the problem of vessel traffic in the navigation channel. In-kind support for the Port District has been volunteered for assistance and general support for the educational signage regarding Rule 9. The U.S. Coast Guard could be a source for funding for buoyage changes, signage, and marina posting. The U.S. Coast Guard Auxiliary already produces many boating safety materials and could be encouraged to support some of the recommendations herein.

OSPR developed an Education Outreach Proposal to reduce the amount of petroleum products entering California's waterways. This program incorporated a number of the HSC education recommendations. The proposal is attached as Appendix O.

"Consider the imposition of user fees, and assess existing billing mechanisms as potential funding sources." (CCR §802(b)(10)(B)).

In view of the above advantages accruing to all concerned, it is anticipated that funding could be provided on a shared basis, from all the economic beneficiaries of such a system, while concurrently providing a safer San Diego Bay for all of its users.

XII. ENFORCEMENT

"Include suggested mechanisms that will ensure that the provisions of the plan are fully,

uniformly and regularly enforced." (CCR §802(b)(8)(A)).

The goal of the Harbor Safety Committee is to prevent an oil spill in San Diego coastal, harbor, and estuarine waters. The effectiveness of the Harbor Safety Plan hinges on the enforcement of navigational laws and practices and on fostering a cooperative ethic among those who use the Bay. This will necessarily require the commitment of the enforcement agencies to enforcement of the current laws regarding boats and vessels on the Bay. The Committee is committed to strong enforcement of speed limits, rules of the road, and adherence to Rule 9 as imperative for safety of navigation to be improved in San Diego Bay.

U.S. Coast Guard has primary authority for enforcement on the Bay, although the Harbor Police shares enforcement responsibility. It has been noted by the Committee that Harbor Police personnel must observe a violation to issue a citation.

RECOMMENDATIONS TO IMPROVE AND ASSIST ENFORCEMENT

Recommendation #20: Continue to support the USCG reporting system on the Bay where pilots or others can report sail or registration numbers of violators.

Efforts to support reporting of Rule 9 and other violators were supported through increased coordination and communication between commercial pilots and San Diego Harbor Police. Harbor Police are now issuing citations and distributing Rule 9 flyers.

Recommendation #21: Explore options for requiring safe boating classes and/ or Bay cleanup for those that are caught violating the law or otherwise endangering safety on the Bay.

Recommendation #22: Coast Guard should insure that all races are properly permitted and monitored.

The Coast Guard Marine Event Permit process includes notification of all agencies which may have an interest in permitted activities. However, regulations do not require all races to be permitted, i.e. sailboat races that do not directly impede traffic and comply with Inland Rules of the Road

Recommendation #23: Request that the Harbor Police and USCG be on patrol during peak periods of traffic.

Efforts to support reporting of Rule 9 and other violators was supported through increased coordination and communication between commercial pilots and San Diego Harbor Police.

XIII. IMPLEMENTATION

Steps to begin implementation of the Harbor Safety Plan have begun. Specific information on implementation is contained in the appropriate sections of the plan. Many of the actions include requests for investigations by the USCG, Caltrans, OSPR

and the San Diego Unified Port District. In addition, the HSC will form teams to implement education and pilotage recommendations. A copy of the OSPR Detailed Regulatory Compliance Review of the San Diego Harbor Safety Plan dated September 17, 1993 is attached as Appendix P. The OSPR strategy for implementing the plan and plan implementation schedule dated February 14, 1996 is attached as Appendix Q.

The HSC has appointed an Education Subcommittee that evaluates and implements recommendations concerning the need for establishing and upgrading existing educational or public awareness programs for all waterway users.

XIV. MISCELLANEOUS

"Address any additional issues deemed necessary by the harbor safety committee that could impact safe navigation in the harbor including but not limited to: vessel pilotage." (CCR §802(b)(12)(A)1.).

PILOTAGE EVALUATION

Pilotage in San Diego Bay is regulated by the Board of Port Commissioners of the San Diego Unified Port District in accordance with the San Diego Unified Port District Act (California Harbors and Navigation Code, Appendix 1). The Board assumed regulation of the San Diego harbor pilots in January 1971. This action followed the elimination of the Board of Pilot Commissioners for the harbor of San Diego resulting from the Governor's action to reorganize the executive branch of the California State Government and in the Reorganization Plan of 1969.

It is not mandatory that foreign vessels, U.S. vessels in foreign trade, or U.S. government vessels take a pilot in San Diego Bay. However, certain of these vessels are required to pay a portion of the normal pilotage fees if the services of a Port pilot are not utilized.

Rules and regulations adopted by the Board govern pilots and pilotage within San Diego Bay. The Board's regulations address: the designation and certification of pilots; qualifications for pilots including license and physical examination requirement; pilot rules of conduct; insurance; and pilot accountability including various reports required of pilots. The charges (rates, fees), rules pertaining to pilotage, and conditions upon which pilotage is provided, including a description of vessels subject to pilotage, are contained in the Port's tariff.

The Board determines, from time to time, the number of pilots required and by resolution designates the persons authorized to perform pilot services in an independent capacity and not as an officer, employee, agent, or independent contractor of the Port District.

The four designated pilots for the Port of San Diego are organized as a single group and provide pilot services under the business name of San Diego Bay Pilots Association, Inc. One pilot is in a retired status but retains designation as a pilot. The Port District does not specifically require that the pilots join together in association. A 52-foot pilot boat was purchased in 1996.

The pilots maintain their own training program that includes training under the senior pilots prior to and following their designation by the Board.

Approximately 1,600 piloting tasks were performed during 1992 with an average task of between 1.5 and 2.5 hours. The pilots administer their own work schedule through their Association and distribute the piloting tasks workload by a system of rotating periods of on-duty, stand-by, and off-duty/vacation shifts. The Navy had 2,180 piloting tasks in 1998.

COMPULSORY PILOTAGE

The Coast Guard has indicated that it is engaged in the rule making process which is intended to mandate a federal licensed pilot be on board all vessels subject to pilotage when underway in any port in California. There is currently a Memorandum of Understanding under consideration between the State of California and the U.S. Coast Guard. The current draft is attached as Appendix R.

The Full Committee created Pilotage (to examine all aspects of pilotage on San Diego Bay) and Education (to implement the educational recommendations) Subcommittees and referred the appropriate recommendations to them.

PILOTAGE SUBCOMMITTEE ACTIONS

Recommendation #24: Continue clearing hazardous flotsam west of the channel off the 24th Street Marine Terminal turning basin to allow for tug maneuvering.

A working group, “Core Partners” associated with the NavSafe Subcommittee has executed a Letter of Agreement to implement a vessel traffic information system for San Diego Bay.

OTHER ACTIONS

An analysis of commercial pilotage in San Diego Bay resulted in the following recommendations from the Harbor Safety Committee regarding pilotage. The full report with findings and adopted tables attached as Appendix S.

I. STATE PILOTAGE

Recommendation #26: The San Diego Harbor Safety Committee recommends that OSPR consider covering San Diego under State Pilotage Regulations. Until such oversight is in effect the San Diego Harbor Safety Committee makes recommendations 27 through 33.

II. RATES

Recommendation #27: Pilotage rates should be sufficient to cover all costs associated with the operating expenses incurred in operating an efficient, safe and responsive piloting organization to secure the safety of the Port of San Diego.

The Port of San Diego should consider all available means of rate setting, including a cost per gross ton, rate structure. Surcharges should be established to fund:

1) Pilot boat operation and replacement
2) Trainee Pilot Program
3) Continued Pilot Training

III. COMPENSATION

Recommendation #28:

1. The San Diego Board of Port Commissioners should consider raising tariff rates to raise pilot compensation levels adequate to ensure a safe operating system by avoiding attrition of authorized pilots, licensed state pilots, certificated deputy pilots, or qualified pilot applicants.

2. In considering compensation levels, the Board should give consideration to other relevant factors, including, the Florida Piloting Statutes April 4, 1994, Journal of the House of Representatives Section 310.151 Rates of pilotage; Pilotage Rate Review Board and the factors given in the Cal Jur 3d Ships and Shipping, HARBORS AND NAVIGATION CODE for San Francisco Bay and the national average.

IV. ORGANIZATION, RULES AND REGULATIONS

Recommendation #29: The rules and regulations promulgated in the Port Tariff should reflect the premise that:

1. The Port of San Diego should recognize an organization as having exclusive authority, to the extent not provided otherwise by federal law, to pilot vessels from the high seas to and within San Diego Bay and returning to sea.

2. No ship's master or crew member should be permitted to pilot his

own vessel in San Diego if subject to pilotage by tariff.

3. Safety is best served by implementing compulsory pilot service for all vessels of 300 hundred gross tons or more, barges carrying hazardous cargo and all oil barges whether empty or carrying cargo.

4. In order to provide professional judgment of the qualifications and suitability of a pilot candidate the Board should consider for designation and authorization only those federally licensed applicants endorsed by the recognized organization.

V. PILOT STATION

Recommendation #30: It is recommended that the pilot office be relocated to the vicinity of Ballast Point or as near to the southern end of Shelter Island as possible and that the pilot boat be berthed adjacent to the station. This location would provide a view down channel offering:

A) real time knowledge of sea and weather conditions;
B) quick response to inbound vessels; and
C) sight inbound vessels on occasion and prevent problems with inbounders.
The pilot office should be adequately equipped.

VI. PILOT TRAINING

Recommendation #31: **1) The recognized pilot organization should write a formal pilot training program to include continuing development of pilots already qualified.**
2) The Port of San Diego should establish a funding mechanism such as a surcharge to provide funds for a formal training program.

VII. RECOMMENDED EVALUATION OF NAVAL PILOTAGE

Recommendation #32: It is recommended that a review and analysis be undertaken, to the extent possible, for the naval pilotage system as it relates to oil tanker and other vessel traffic through San Diego Bay and the area covered by the San Diego Harbor Safety Committee.

This analysis would provide the HSC with a greater understanding regarding naval traffic and pilotage practices and would enable the HSC to make recommendations to both OSPR and the Navy regarding any improvements or standardization that may improve safety in San Diego Bay. It is recommended that this

review be undertaken by the Pilotage Subcommittee.

Recommendation #33: The HSC supports the Coast Guard rule making process which would mandate federal pilotage in San Diego Harbor. Furthermore, the Harbor Safety Committee recommends that OSPR support this process to the extent possible.

"Vessel ballast procedures or requirements." (CCR §802(b)(12)(A)2.).

On September 21, 1992, the Governor of California approved Assembly Bill No. 3207. The bill requires the Department of Fish and Game to adopt specified guidelines as the policy of California in order to prevent the introduction and spread of aquatic nuisance species, as defined, into any river, estuary, bay, or coastal area through the exchange of ballast water of vessels prior to entering those waters.

The bill is codified in California Fish and Game Code §§6430 et sec. §6432 mandates that the department adopt the International Maritime Organization's (IMO) "Guidelines for Preventing the Introduction of Unwanted Aquatic Organisms and Pathogens From Ships' Ballast Water and Sediment Discharges" as adopted on July 4, 1991. The relevant California Fish and Game Code sections are included in the Appendix T along with a copy of the IMO Guidelines.

"Vessel mooring requirements." (CCR §802(b)(12)(A)3.).

Mooring is allowed only in designated areas. It was of concern to the Committee that anchor lights are not required by certain length vessels in special anchorage and certain other areas as specified in Rule 30, "Inland Navigation Rules".

"Navigation in reduced or restricted visibility." (CCR §802(b)(12)(A)4.).

Currently, there are no requirements regarding navigation in reduced or restricted visibility beyond Rules of the Road. The Committee recognizes that there should be a greater standard of care for movement of vessels in poor visibility. The Committee feels that it is important to establish guidelines for navigation in limited visibility and intends to develop these guidelines. The HSC adopted the following guideline in FY 96-97.

> No vessel over 1600 designed displacement tons should transit the Coronado Bay Bridge in low visibility if the bridge is not held visually within stopping distance. Tank ships or barges carrying petroleum products, explosives, or hazardous materials should not commence a movement in the approaches to or in outer or inner San Diego Harbor, with a visibility of less than .5 nautical mile (1,000 yards).

"Maintenance dredging necessary for safe vessel operation." (CCR §802(b)(12)(A)5.).

With the proposed relocation of Buoy 16, 17, and 19 and the removal of Buoy 16A, the Army Corps of Engineers has been contacted to examine the possibility of some minor dredging to widen the navigation channel to accommodate large vessels at this turn in the channel. The next planned dredging of the channel began in 1996. The Navy standard for depth beneath the keel is 3 feet minimum.

The Navy has prepared a Programmatic Environmental Impact Statement (PEIS) for eight major maintenance and expansion dredging projects planned for San Diego Bay. This includes maintenance dredging at Pier 180, Pier BRAVO, and Main Channel Dredging to include 490,000 cubic yards of sediments from the areas and approaches around Piers 11-13, the Seventh Street and Chollas Creek Channels. Other dredging is planned to accommodate a small Craft berthing Pier at the Naval Amphibious Base, Patrol Boat Coastal Berthing at the Amphibious Base, Piers 2,3 and 8 to accommodate increased number of homeported deep draft power intensive ships and proposed homeporting of – up to four Nimitz Class -aircraft carrier at NAS North Island. The total dredging for these projects is expected to exceed 11 million cubic yards of sediment. The complete description of the proposed dredging from the PEIS can be found in Appendix U.

Additional areas of investigation by the Harbor Safety Committee

PIPELINES, GAS LINES AND OTHER PIPES THAT CARRY OIL AND FUEL PRODUCTS IN THE SAN DIEGO BAY WATERSHED.

Three major pipelines move fuel around and under San Diego Bay. A jet fuel pipeline carries jet fuel from Pt. Loma to Naval Air Station North Island. This pipeline runs underneath the mouth of San Diego Bay. A pipeline also carriers jet fuel from Pt. Loma to Miramar Naval Air Station. San Diego Gas and Electric also has a pipeline in National City. A task force was formed to investigate the presence of pipelines that could affect San Diego Bay. The MOU between the California State Fire Marshall and the California State Lands Commissions details the agreement between these agencies regarding jurisdiction over pipelines from marine terminals. Applicable sections are attached as Appendix V.

GUIDELINES FOR UNDERKEEL CLEARANCE IN SAN DIEGO BAY

These guidelines are for underkeel clearance during the normal range of weather conditions for San Diego Bay and its entrance channel. Generally, a maximum 34 foot still water draft provides an adequate safety margin for vessels entering and transiting the bay, and mooring at berths with at least 35 feet charted depth. This guidance sets forth recommended limits for vessels whose draft may equal or exceed 34 feet due to vessel loading, trim, list, squat, and heave. Any adverse weather conditions or abnormal bottom changes will require a case by case re-evaluation.

Underkeel clearance is understood to mean the minimum calculated clearance between the deepest point on the vessel and the bottom after tide (plus or minus), trim, list, squat, and expected heave due to the existing sea swell condition are taken into account. The underkeel clearance margins set forth in this guide provide the safety factor necessary to account for unpredictable variations in the bottom, the height of tide, vessel squat, and response of the vessel to the sea conditions.

Geographic area of San Diego Bay	Underkeel Clearance Margin
a. Channel Entrance, between Buoy SD and Buoys 9 & 10	4 feet
b. Main Channel, between Buoys 9 & 10 and Buoys 40 &41	2 feet
c. Outside of Main Channel and at any berth*	1 foot

Notes:

If the depth of the berth or anchorage for vessels to be moored, loaded or unloaded at a berth, or anchored when the published tidal depth within the next 24 hours (or the period prior to the vessel's departure, whichever is longer) will be less than the vessel's draft plus 1 foot, the vessel master, owners, operators, charterers or agents and the pilot shall first notify the U.S. Coast Guard Captain of the Port San Diego, the San Diego Unified Port District Marine Operations Department, and the San Diego Bay Pilots Associations, Inc. The notification by the vessel master, owners, operators, charterers or agents shall include the vessel's cargo operations plan for maintaining the recommended underkeel clearance at all times. A contingency plan should be outlined to take into account unexpected delays caused by mechanical failures of loading/unloading equipment or labor problems that may prevent a vessel from being unloaded and departing on schedule.

* An estimate for squat can be calculated by using the formula:

Squat (in meters) = $C_b \times (V^2 \div 100)$

where C_b = vessel's block coefficient

V = vessel's speed in Knots